US006044098A

United States Patent [19]

Sun

[11] Patent Number: 6,044,098

[45] Date of Patent: Mar. 28, 2000

[54] **DEEP NATIVE OXIDE CONFINED RIDGE WAVEGUIDE SEMICONDUCTOR LASERS**

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[21] Appl. No.: **08/920,444**

[22] Filed: **Aug. 29, 1997**

[51] **Int. Cl.**[7] **H01S 3/19**

[52] **U.S. Cl.** **372/46**; 372/94; 385/131

[58] **Field of Search** 372/43, 44, 46, 372/93, 94; 385/14, 130, 131

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[57] **ABSTRACT**

A ridge waveguide semiconductor laser structure fabricated by etching and wet oxidation. The upper cladding layer is partially etched forming a ridge and a native oxide layer is wet oxidized from the remaining upper cladding layer and the active region outside the ridge. The deep native oxide layer provides strong optical confinement to the ridge waveguide. Alternately, the active region can be narrower than the ridge waveguide in the laser structure. The ridge waveguide semiconductor laser structures with native oxide layers can also be curved geometry lasers such as ring lasers.

12 Claims, 5 Drawing Sheets